

Appl. No.: 10/002,461
Applicant(s): Keith R. Slavin
Filed: November 1, 2001
Title: LOW POWER, HASH-CONTENT ADDRESSABLE MEMORY ARCHITECTURE

Art Unit: 2189
Examiner: Reba I. Elmore

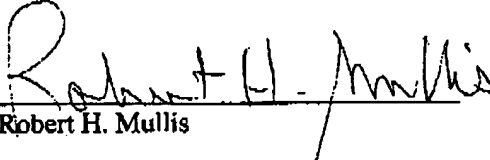
Docket No.: DB000955-000

DECLARATION UNDER RULE 131

I, Robert H. Mullis, state as follows:

1. I was the supervisor of Keith R. Slavin, the named inventor on the above-identified patent application.
2. In connection with the above-identified patent application, Mr. Slavin prepared an Invention Disclosure form and submitted the form to the Micron patent department. A copy of page 1 of the Invention Disclosure form is attached as Exhibit A.
3. Enclosed as Exhibit B is a copy of the last page of the Invention Disclosure form which bears Mr. Slavin's signature and the date, June 27, 2001.
4. Attached to the Invention Disclosure form were four figures, attached hereto as Exhibit C. The figures of Exhibit C were read and understood by a witness, who signed and dated the figures on June 27, 2001.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.


Robert H. Mullis
2/8/2006
Date

INVENTION DISCLOSURE

1. INVENTOR(S):

2. Keith R Slavin

RECEIVED

JUL 03 2001

3. DESCRIPTION:

● Title:

A Low Power Hash-Ternary Contents-Addressable Memory

● Brief Description:

A Ternary Contents-Addressable-Memory (TCAM) normally consumes a lot of power because of simultaneous activity on large numbers of match lines - one for each TCAM entry. This patent shows how this activity can be reduced in a guaranteed fashion for any random or systematically generated set of TCAM entries by using a form of hardware based hashing. An example is shown for 128-bit IPv6 internet address matching used in routers. The power savings increase as TCAMs get larger. Micron can use this patent to build TCAMs with unrivaled worst-case power consumption.

4. CONCEPTION & DOCUMENTATION OF INVENTION:

● Date when first conceived:

Redacted

● To whom was the idea first described:

Redacted

● On what date:

Redacted

● Date of the first tangible record:

Redacted

● Type and location:

Redacted

5. INFORMATION RELATED TO INVENTION:

● Related invention disclosures:

Redacted

Redacted

8. INVENTORS:

Name : Keith R Slavin

Home Address : 8474 SW Chevy Place

City : Beaverton State : OR Zipcode : 97008

Citizenship : U.S.A

Company : Micron Technology, Inc.

Work Phone # : 503 643 1182 Mail Stop : 831

Dept Name : SJDC CA-ARCH-ADV DEV Dept # : 402

Supervisor : Robert H. Mullis

Signature : Keith Slavin

Date : 27th

June, 2001

27th June, 2001

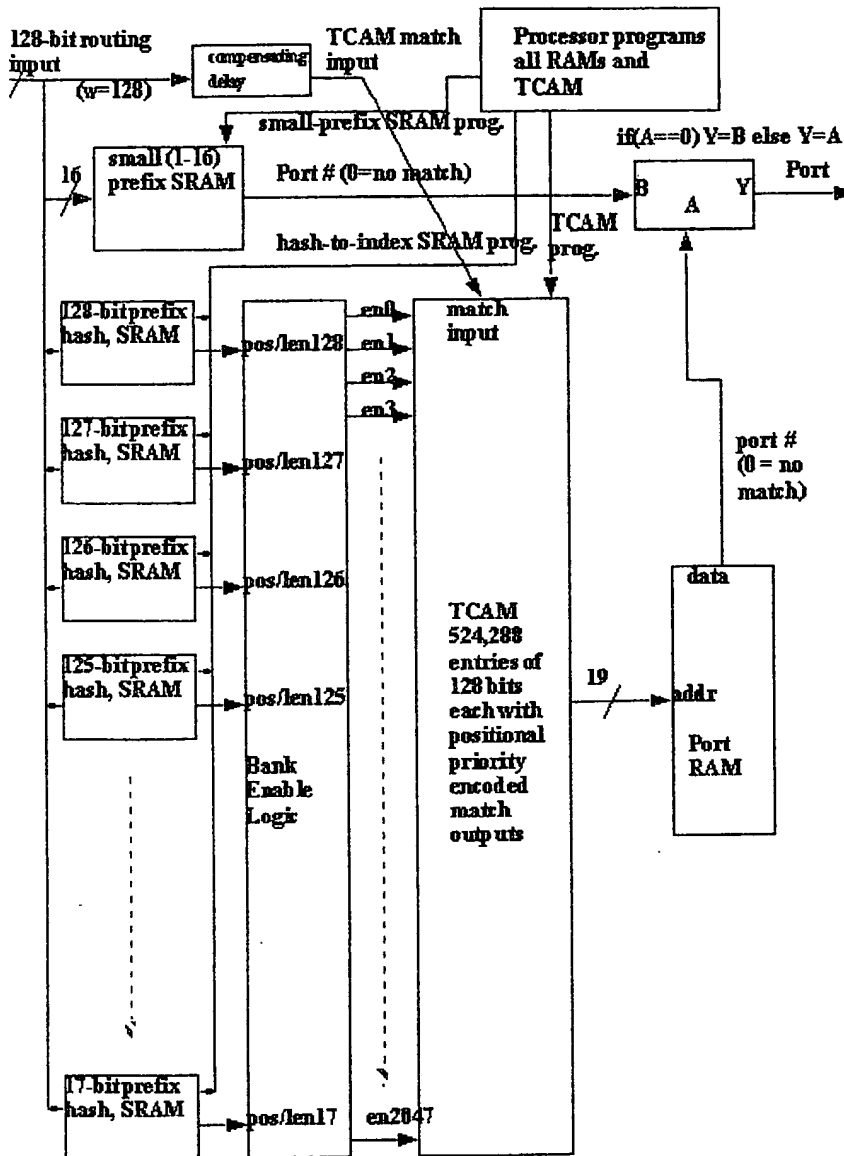
$$E_{\text{hib.} + c} \quad 1/4$$


Figure 1. Block Diagram of Hash CAM System

Rec'd & understood, Shum 6/27/2001

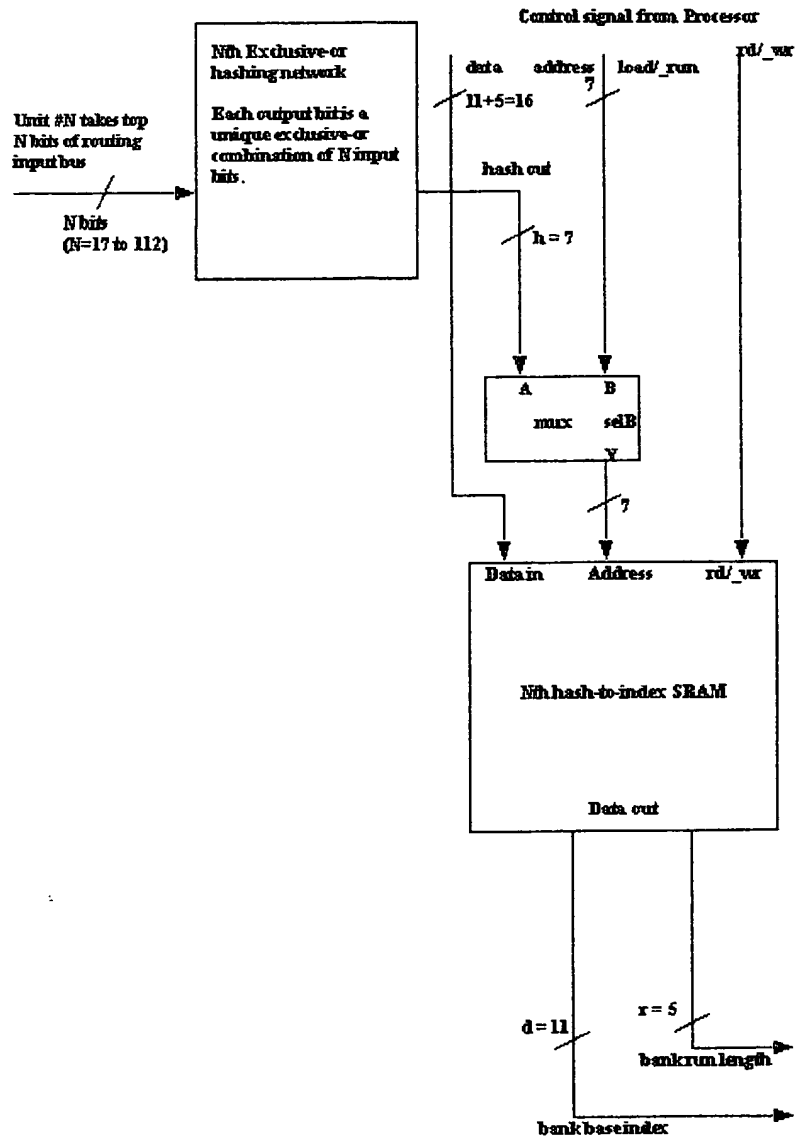


Figure 2: Block Diagram of a Hash, SRAM (112 instances from Figure 1)

Keali E. Understood, SKM 6/27/2001

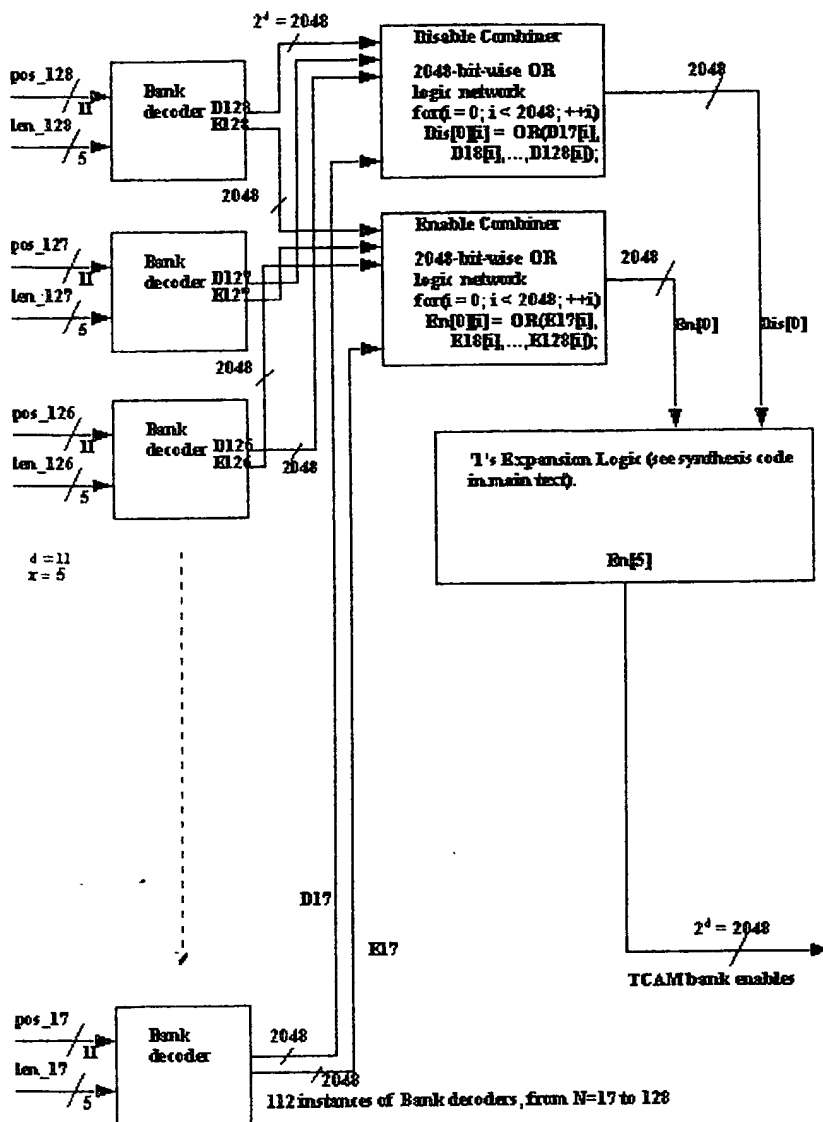


Figure 3: Bank Enable Logic Detail from Figure 1.

Lead & understood, shown 6/27/2001

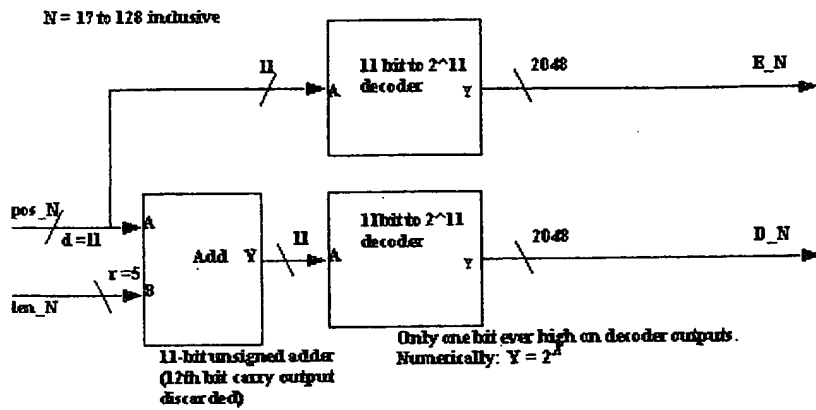


Figure 4: Bank Decoder Logic (112 instances from Figure 3)

Keat & understood 6/27/2001



Edward L. Pencoske
Direct Dial: 412-394-7789
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ATTORNEYS AT LAW SINCE 1895

Mr. Keith R. Slavin
8474 SW Chevy Place
Beaverton, OR 97008

September 18, 2001

Your Ref.: 01-0660
Our Ref.: DB000955-000 (013721.076421)
Disclosure Title: LOW POWER HASH-CONTENT
ADDRESSABLE MEMORY
ARCHITECTURE
Country: U.S.A.
S.N.: Not Yet Assigned

Dear Mr. Slavin:

Enclosed is a draft of a patent application directed to the above-identified disclosure. Please review the draft to be sure it correctly and fully describes your invention. The description of the invention must (i) be sufficient to enable a person of ordinary skill in the art to make and use the invention and (ii) disclose the best mode known to you of practicing the invention. Bear in mind that we cannot add further description of the invention to the application after it has been filed, so it is important to ensure that the invention is fully and properly described. In that regard, it is appropriate to include in the application foreseeable equivalents for disclosed components. Feel free to make any additions or corrections. We will send the final application and the formal papers to you for your execution as soon as your comments and suggestions are received and incorporated into the enclosed draft.

18 MONTH PUBLICATION

Patent applications are now published by the U. S. Patent Office 18 months after the filing date. If you do not plan to file corresponding applications in foreign countries that publish patent applications, you may file a certification requesting that the U. S. Patent Office not publish your application. However, if you change your mind, and file a corresponding application in a foreign country that publishes applications, you must notify the U. S. Patent Office within 45 days of filing such a foreign application. If you fail to timely notify the U. S. Patent Office of such a foreign filing, your U. S. Application will be abandoned. We ask that you begin considering whether you will file corresponding applications so that a decision regarding filing the certification can be made at the time that the formal papers are executed.

Pittsburgh

Philadelphia

Princeton

Wheeling

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Mr. Keith R. Slavin
Page 2

September 18, 2001

REVIEW OF INVENTORSHIP

Now that claims have been prepared, it is appropriate to review the inventorship issue and ensure that all of the people who have made an inventive contribution to the claimed subject matter, and only those people, are listed as inventors.

REVIEW OF DUTY OF DISCLOSURE

To ensure that we have all the information to satisfy the duty of disclosure under Rule 56, please carefully review these questions and advise us of any information sought by the questions that has not already been brought to our attention.

1. Are you aware of any previous work that in any way comes close to fitting within what is defined by the claim(s)?
2. Could anybody say that the subject matter defined in the claim(s) is either in commercial use or has been offered for sale?
3. Has anyone published anything concerning the work defined in the claim(s)?
4. Could anyone say that this patent application is supported with specially selected data while certain other data would contradict that support?
5. Are you aware of any patents or printed articles which are directed to solving the same problem as the present invention and do so in a similar way?

Mr. Keith R. Slavin
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September 18, 2001

We look forward to receiving your comments on the enclosed application as soon as possible.

Sincerely yours,



Edward L. Pencoske

ELP/mep
Enclosure
cc: Stacy Summers (w/encl.)



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ATTORNEYS AT LAW SINCE 1895

VIA OVERNIGHT MAIL

Mr. Keith R. Slavin
8474 SW Chevy Place
Beaverton, OR 97008

October 11, 2001

Your Ref.: 01-0660
Our Ref.: DB000955-000 (013721.076421)
Disclosure Title: LOW POWER HASH-CONTENT
ADDRESSABLE MEMORY
ARCHITECTURE
Country: U.S.A.
S.N.: Not Yet Assigned

Dear Mr. Slavin:

Enclosed is a copy of the application which includes the specification, claims, and drawings. Please review the application to determine if it is satisfactory, i.e., it completely and fully enables and describes the best mode of practicing the invention. I have included the markup of the previous draft to aid in your review. If the application is satisfactory:

1. You must execute the enclosed Declaration by signing and dating that document where indicated.
2. You must execute the enclosed Assignment by signing and dating that document where indicated.
3. Return the application, Declaration and Assignment to us.

We will immediately file the executed application upon its receipt. It is not necessary for you to retain copies of the enclosed documents. Upon filing the application, a complete copy of the application as filed will be sent to you.

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Mr. Keith R. Slavin
Page 2

October 11, 2001

If you believe any of the enclosed documents need to be revised, please contact me at once.

Sincerely yours,

A handwritten signature in black ink, appearing to read "E. L. Pencoske".

Edward L. Pencoske

ELP/mep
Enclosures
cc: Stacy Summers (w/o encl.)